Impact of Temporal Changes of Rainfall on Major Climatic Zones of Sri Lanka

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Abstract

Historical and predicted rain fall records and spatial interpolation of temporal trends were analyzed to identify its impact on major climatic zones of Sri Lanka. Data from GHCN version 2.0 of monthly precipitation from 1930-2000 of 15 gauging stations in Sri Lanka were used in this study. Annual and four temporal seasons: Southwest monsoon, Northeast monsoon, First Inter-monsoon and Second Inter-monsoon were used as the time scales. Regression models and the Mann-Kendall test were used to analyze the linear and non-linear long-term annual and seasonal trends. From 2001 to 2100, monthly rainfall values were simulated from GCMs predictions by using LS-SVM. Then the annual and seasonal spatial distributions of trend statistics were mapped by using the inverse distance weighted interpolation method. The results suggest that the current boundaries of the wet zone of Sri Lanka have to be broadened and current intermediate zone could be expanded further in the next century. A semi-arid region can be developed around Batticaloa and the eastern coastal belt of the country. Current semi-arid regions may remain unchanged.

Keywords: Climate change, Climatic zones, Rainfall, Trend analysis

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